WHIRRAKEE

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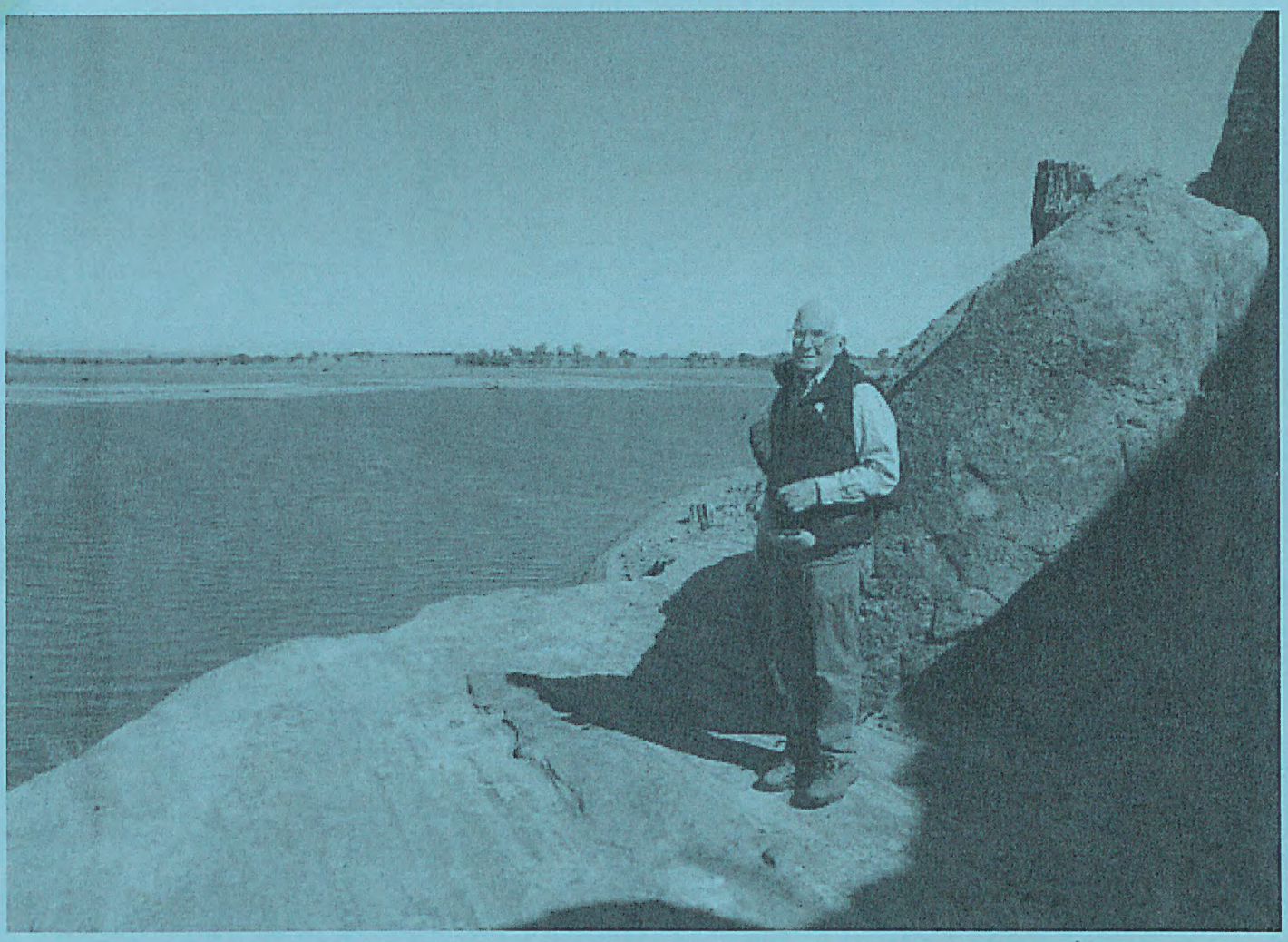

MONTHLY NEWSLETTER OF THE

BENDIGO FIELD NATURALISTS CLUB

Bendigo Field Naturalists Club Inc.
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Membership of the Bendigo Field Naturalists Club is open to all those interested in Natural History. The subscription rates are: Single $40; Family $50; Concession: Single $35; Family $40. *Whirrakee* subscription only is $40.

General meetings are held on the second Wednesday of each month. The venue for General meetings is the Golden Square Hall, Old High Street, Golden Square. The meeting starts with members sharing their recent natural history observations. The invited speaker starts at 8:00pm and meetings conclude with supper. The Annual Meeting is held in September.

Committee meetings are held on the third Wednesday of each month at 5:30pm. Members of the Committee are the Office Bearer listed above and the following members: Richard Goonan, Karen Thomas, Jess Milroy, Alistair White. *There are two vacancies for committee members*

Excursions are conducted regularly and are advertised on the diary page of the *Whirrakee*. The assembly point for excursions is the Golden Square Hall, unless otherwise specified. Several interclub field naturalist campouts are held every year.

The Bendigo Field Naturalists Club is actively involved in local conservation issues. An **indigenous garden** has been established around the Golden Square Hall. Working bees are advertised on the *Whirrakee* diary page.

Bird Observing: Club members conduct regular bird surveys. Please contact Anne Bridley 5442 6188 or Glenise Moors 5439 6254 for details. Special bird observations should be reported to Anne Bridley 5442 6188. To propose bird observing excursions please contact Kerrie Norris 5447 8017.

WHIRRAKEE

Monthly Newsletter of the Bendigo Field Naturalist Club
Vol. 37, No. 11, December 2016
Whirrakee takes its name from the Whirrakee Wattle (*Acacia williamsonii*), which is virtually endemic to the Bendigo region

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Authors are responsible for the accuracy of the information they use and also for any opinions expressed in their articles. Contributions should be posted or e-mailed to the editor at least two days prior to the last Wednesday of the month. They will be included as soon as possible after they are received, although space restrictions occasionally require shortening of articles or holding them over till the following edition of *Whirrakee*.

Articles in *Whirrakee* may be reproduced, but permission should be obtained from the Bendigo Field Naturalists Club, and acknowledgment should be given to the author and the Club. Some back issues are still available on request.

Editor's Note

The last edition for the year is another extra big one, to clear the decks for 2017. You will notice that there are three excursion reports, including a relatively old one from April. I heard it whispered, that another geology excursion is planned for 2017, so this delayed report from the April excursion might whet your appetite for the next one. However, before the 2017 excursion schedule is revealed, we have the annual Christmas dinner (see back page for starting time and other details) and the Hall clean-up gathering, both of which are always very social affairs. I hope that between now and the end of summer, members will continue to find interesting aspects of nature, travel safely (wherever you go) and have a wonderful rest during the summer holidays, to emerge fresh and invigorated by the next club meeting, with many observations and stories to tell (and some photos?). The deadline for the February Whirrakee *is the 24th of January).*

Front page photograph: Eric Wilkinson is standing on the fluvioglacial pavement that bears his name on the shores of Lake Eppalock (photographed by John McCallum during the April geology excursion). For more photos and excursion report, see pages 6, 7 and 10.

Short Notices

BFNC Weekly Naturalist Walks – Nature Knowledge Exchange: Saturday 9am-12pm
Club members and visitors (families and students) are invited to join our Weekly Naturalist Walks program running throughout 2016. Walks will visit a range of local areas and provide participants with an excellent introduction to natural history and forest ecology, including birds/plants/fungi/insects, recording observations, and learning/developing field skills. New members and visitors are welcome. Meet at the **Golden Square Hall from 8:50am to register, depart 9:10am. Conclude approximately 12:00pm**. Please carry with you some water and a light snack, and wear clothing suitable for the prevailing conditions. Walks will be short and of easy to moderate difficulty, suitable for anyone with a basic level of fitness.
To find out more, call **Richard (0423418815) or email richard.goonan@optusnet.com.au** or **check the club's website for the latest updates** www.bendigofieldnaturalists.asn.au

Planned destinations for December so far are: **December 3, 10 and December 17**, see website for details.
In January, there is **'Breakfast with the Birds'** (Saturday January 7/14/21/28, 7-9am) - visiting local areas, meet 7am Golden Square Hall. See website for further details.

Naturalist Workshops
Over the past year the Club has successfully run a monthly series of Naturalist Workshops specifically designed to develop participants' proficiency across a broad range of field based naturalist skills and knowledge. They were designed to cater for a wide range of abilities and used a participatory/interactive model where participants learnt from one another in a friendly and welcoming environment. There will be no workshop in December. Naturalist Workshops will continue again next year with the first one in February, on the 22/02/2017. The topic will be advertised in the February *Whirrakee*, along with other details. If you have any feedback or want to get involved, send us a message at info@bendigofieldnaturalists.asn.au

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October 16 Excursion: Wellsford, Crosbie, One Eye, Axedale Forests – wildflowers and heathlands, past and present
by Richard Goonan

October is generally a good time for wildflowers and this year was exceptional. After conceiving of the idea to retrace parts of past excursions and working out a route to incorporate several different forest areas within the broad theme of heathland and wildflowers, I just needed to get the timing right. Come early September the heathland areas looked surprisingly poor. Despite the winter rains, it wasn't looking all that promising, and then something special happened. September turned out to be extra wet, and the rain fell in the right places, bringing the heathlands and particularly their annual/herbaceous ground layer flora to life. The excursion was designed to include several areas visited during past excursions by the Club and to consider what changes may or may not have occurred since.
Wellsford Forest was the first destination, heading for an area of Heathy Woodland associated with sandy soils in the northeast corner of the forest. As we entered the heath, the scent of *Brachyloma daphnoides* filled the air. *Grevillea alpina, Letptospermum myrsinoides, Hibbertia riparia,* and *Calytrix tetragona* provided an abundance of colourful shrubs and *Thelymitra antennifera, T. rubra, and T.megacalyptra* among the thick *Drosera peltata* provided colourful patches among the ground layer. Small plants such as *Levenhookia dubia, Drosera glanduligera, Centrolepis strigosa* and *Rhodanthe laevis* were also of much interest. Similar patches of heath nearby were also visited and these included displays of *Prostanthera dentata* (including a white flowered form), *Caleana major*, and *Glischrocaryon behrii*. Butterflies, hoverflies and mosquitoes (!) were also abundant.

After crossing the Campaspe River at Barnadown we headed for Crosbie Forest. This stop included a special location once favoured by Tom Patullo for orchids. Using some vague references found in an old excursion report, I was able to cross reference various geographical information (forensic geography) to successfully relocate the spot. Without time to simply drive around blindly until I stumbled upon what might be the area, I was able to narrow the search to a few particular sites where I considered there to be a high probability of success, and sure enough, the third area turned out to be a match. Heathland vegetation across this region has a strong similarity and a familiar range of species were seen here (as found at the Wellsford Forest sites). This site also had a stunning display of flowering wildflowers, including several white flowered *Arthropodium strictum*. The abundant flowers supported a great variety of insect activity. After a long wander around after lunch it was time to head for the One Eye Forest.

Once again, the spot in the One Eye Forest was part of a past excursion originally undertaken following the large Heathcote wildfire which spread from near the shore of Eppalock toward Heathcote and over Mt Ida. Part of the One Eye Forest was burnt and club members visited about 10 months later to see how it was going. The excursion report noted abundant Spider Orchids among good regeneration of other understory species and John recalled the post-fire mass display of *Podolepis jaceoides*. While some changes to the understorey now appear evident, we did locate the *Caladenia tentaculata* (Spider Orchids).

To finish the day with a flourish, we decided to add an impromptu visit to Axedale on the way past heading back toward Bendigo. It was incredible to see the display of *Thelymitra megacalyptra* in such abundance, a reminder of the ability of native species to respond when conditions are right. Here we also found *Diuris pardina, Diuris sulphurea, Diuris behrii, and Diuris* hybrids (highly variable). This site is now very weedy (especially evident this year) and could do with some focused management.

After a long day, 6:00pm by the time we finally decided to call it quits, it had turned out to be a most enjoyable epic wildflower adventure with an intriguing historical twist.

November 13 Excursion: Kamarooka, A is for Asteraceae by Richard Goonan

Despite the inclement weather, a hardy bunch of field naturalists ventured into the Kamarooka on Sunday 13th November in search of the many and varied species of Asteraceae recorded for the area.

After making our way to Noble Track our initial stop included *Olearia decurrens*, *Ozothamnus retusus*, *Lagenophora huegelii* and *Euchiton sphaericus*. As the weather closed in, we headed toward Boundary Track where masses of *Rhodanthe corymbiflora* were found. While conditions were not conducive to fully appreciating the mass display of this species, it was none-the-less very rewarding to see. Other species found among the shallow gilgai undulations in this area included *Solenogyne dominii*, *Brachyscome dentata*, *Calocephalus citreus*, *Chrysocephalum semipapposum*, *Xerochrysum viscosum*, *Calotis cuneifolia*, *Leptorhynchos tetrachaetus*, *Leptorhynchos squamatus*, *Vittadinia cuneata* var. *cuneata*, *Vittadinia gracilis*, *Cassinia arcuata*, and *Cymbonotus preissianus*.

The rain had set in by this time, and it was decided to head back to the main road for a stop nearer the northern edge of the forest. This area contained *Pycnosorus chrysanthes*, *Craspedia paludicola*, *Brachyscome debilis*, *Calotis scabiosifolia* var. *scabiosifolia*, *Triptilodiscus pygmaeus*, *Myriocephalus rhizocephalus*, *Gnaphalium indutum*, *Laphangium luteoalbum*, *Senecio pinnatifolius*, *Senecio quadridentatus*, *Pogonolepis muelleriana*, *Microseris walterii*.

On the way south before finishing the day, two quick stops in the mallee along Hayhurst

Rd; at the first we found *Brachyscome multifida* (for want of a better name as this is a complex of many undescribed species), and *Cassinia complanata*, at the second stop, *Rhodanthe laevis, Hyalosperma demissum*, *Ozothamnus obcordatus*, *Olearia teretifolia* and *Olearia ramulosa* var. *stricta*.

Despite the difficult conditions which required considerable alteration to the planned excursion route, the group was able to locate more than 30 species, not including the many weeds also seen during the day. Although not the focus of the excursion we observed *Arctotheca calendula*, *Centaurea melitensis*, *Cotula bipinnata*, *Cirsium vulgare*, *Conyza bonariensis*, *Conyza albida*, *Helminthotheca ecioides*, *Hypochaeris glabra*, *Hypochaeris radicata*, *Lactuca serriola*, *Leontodon taraxacoides* subsp. *taraxacoides*, *Scorzonera laciniata* var. *calcitrapifolia*, *Silybum marianum*, *Sonchus asper* subsp. *aspera*, *Sonchus oleraceus*.

In the spirit of sharing and developing knowledge, throughout the day Ben and Matt provided a wealth of information on each species key diagnostic characteristics, local distribution and growth habits. Our discussion was further enhanced by Ray, John and Colin's contribution to the etymology and meaning of each species' Latin name. My contribution to preparation for the excursion included compiling a comprehensive species list and collating up to date descriptions and diagrams for all the species likely to be encountered. Although it was unfortunate we missed the best viewing conditions, all agreed it was a good day. While I would have liked to complete the excursion as planned, we were able to adapt well to the conditions and a drop of rain at the end of a great season is always welcome!

On the birding front, Crested Bell-birds were heard in the eastern section of the forest and one White-winged Triller was seen along Nobel track. A Chough nest with young was found along the northern section of Clay Rd.

On-Line help with identification
gathered by John McCallum

There are a number of on-line sources of help for identification of plants and animals. Here are a few that I have used.

Animal Identification Websites

The Museum Victoria's website contains a wealth of information and a good way to start might be to go to this page
https://museumvictoria.com.au/bioinformatics/wildlife/

If you are interested in mammals, for instance, you might navigate to
https://museumvictoria.com.au/bioinformatics/mammals/index.htm

From the list on the right side of the page you can navigate to skull images. This is a comprehensive gallery of pictures of skulls and jawbones of all Victorian mammals and is an excellent resource for identifying bones that you might find. Remember that it is illegal to handle or remove from the bush any part of a protected animal, dead or alive.
https://museumvictoria.com.au/bioinformatics/mammals/images/thumbindex.htm

Botany Websites

For plant identification, the Keybase series of keys can be found here:
http://keybase.rbg.vic.gov.au/

Clicking on the Flora of Victoria image takes you here
http://keybase.rbg.vic.gov.au/projects/show/10

Find the genus in which you are interested and double click on the name. This should open a key to the various species. When you have worked through the key to the answer, a double click on the species name should bring up a description and other information about the species.

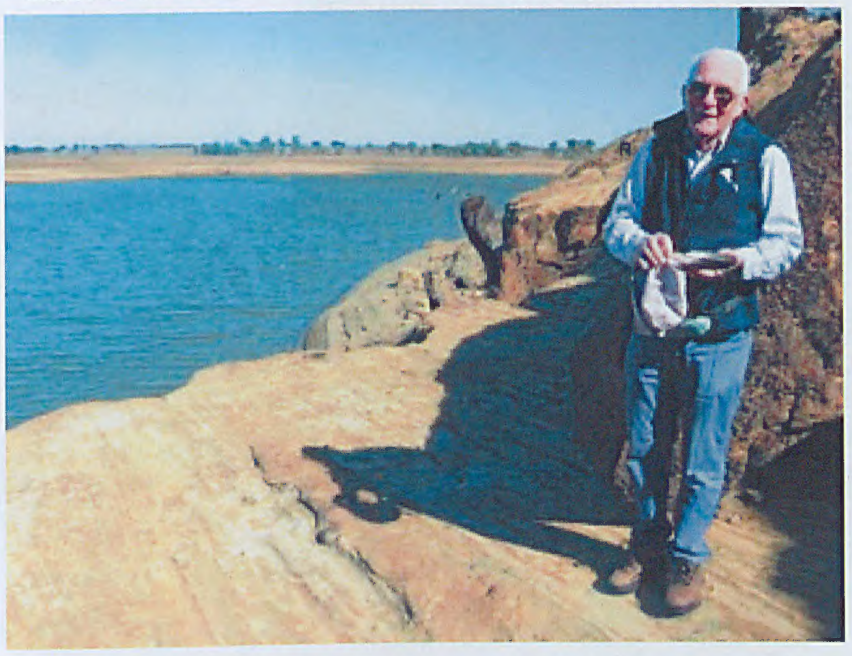
The Australian National Botanic Gardens site is also worth a visit.
https://www.anbg.gov.au/index.html

From the home page follow the link to Botanical Resources. There you will find a wealth on general and specific information about various non-flowering plants, for example there is a key to all the ferns of Australia.

Above: Permian glaciation sites at Lake Eppalock Moorabbee and Derrinal areas visited during the 2016 geology excursion
1. Shore of McIvor Bay (erratics and till) 2. Dunn's Rock (Ordovician bedrock)
3. Day's Rock (Ordovician bedrock) 4. Kellam's Rock (Ordovician bedrock)
5. Point Patterson (fluvio-glacial congomerate) 6. Moorabbee Bluff (interglacial pavements)
7. The Stranger (granite erratic) 8. Hillsides west of The Stranger (erratics)
9. Exit road from Moorabbee (till) 10. Cutting on the McIvor Highway (till)
Please note that the locations on the map are not numbered the same way as in the report.

April Geology Excursion (conducted 17 April 2016, see report on page 10). Text and photos by John Lindner

Below: 'Our' Eric (see also front page), standing on Wilkinson's Rock, a fluvioglacial pavement exposed on the shores of Lake Eppalock. The pavement comprises sediments laid down from fine material out of the the ice which subsequently retreated as the climate warmed.

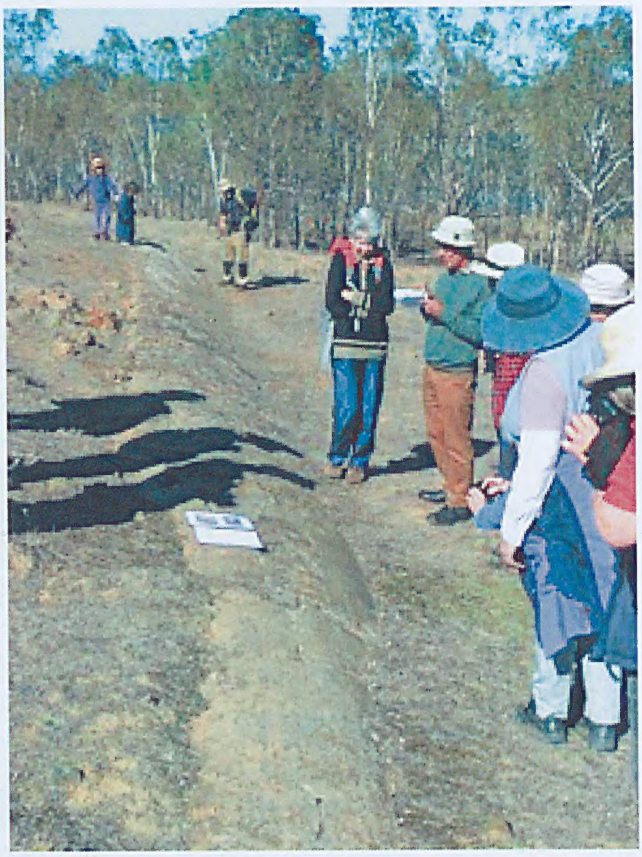


When the ice advanced again (cooler climate), pebbles in its base scored the sediment layer. You can see the shallow, parallel lines coming towards the front of the photo.

Currently this special site is deep under water…

April Geology Excursion (continued).
Photos and text by John Lindner

Left: At The Stranger, a granite erratic perched on the hill above the lake, carried on or in the ice from the Cobaw Range to the south.



Right: At Dunn's Rock, the Ordovician bedrock which sparked the whole episode in which Frank Robbins was determined to prove that Permian glaciers had indeed moulded and scored the surface. As this rock lies well above the lake, its surface is covered with lichen.

Below: At Kellam's Rock, a magnificent example of Ordovician bedrock which was smoothed and scored by Permian glacial ice moving northwards over its surface. Note the 2 huge grooves on the left, either made my two huge pebbles in the ice or due to a softer part of the rock. The surface is lichen-free and quite clean because it is in the turbulent wave zone at intervals as the lake rises and falls.

October Excursion to Wellsford, Crosbie and One Eye and Axedale Forest (photos by Richard Goonan, see report on page 3)

Right: Happy weeding, thanks to Janet Tucker as we walked through the Heathland, occasional Cape Weeds were removed to limit their further invasion into these areas. What might at first appear a 'lost cause' was actually easier (and likely more effective) than you'd think.

Left: Naturalists gather in a heathland to enjoy spring wildflowers during October 2016. The excursion led by Richard Goonan retraced parts of several past club excursions to consider potential changes that may have occurred over time.

Below left: *Thelymitra x macmillan* is a brilliantly coloured Sun Orchid found in local heath-lands where the parents from which it hybridizes are growing, these include *T. megacalyptra*, *T. rubra*, and/or *T. antennifera*. This specimen was found at Crosbie NCR.

Right: These colourful white and purple forms of *Prostanthera denticulata* were found growing together at a heathland patch in the Crosbie NCR.

So many different Spear Grasses... Matt Comer had searched the district far and wide to bring together nearly 20 species of spear grasses (*Austrostipa* spp.) for the November workshop. Identifying grasses is quite difficult and going through the key, there were many dead ends and incorrect results. However, we learned a lot by going through the process (never mind that I only got one out correctly!) Photo by S.Wilkens.

Many thanks to all the workshop conductors this year for the extra effort they spent, trying to share their skills and knowledge.

In this context, this book (advertised last month) might be of interest: *Name Those Grasses* by Ian Clarke. This 536-page volume is densely packed with information about the classification, floral structure and field identification of sedges, rushes and grasses. It is copiously illustrated with colour photos of high technical quality and beautifully executed black and white line drawings...a Christmas present?

Can anyone guess the identity of this tree?
(Photo by Pauline Read)
Solution on the inside back page.

April Geology Excursion Report

by John Lindner

Subject Permian glaciation at Lake Eppalock
Date Sunday 17 April
Leaders Eric Wilkinson and John Lindner
Participants Aaron Hall, John Lindner, Kate Lindner, Judy Milner, John McCallum, Meg McCallum, Lyn Hamilton, Anne Bridley, Colin Thomas, Bev Culvenor, Simon Hay, Ben Goonan, Richard Goonan, Richard's little daughters Nerrina and Athene (total of 16)
Weather Fine and sunny but with a stiff, rather cool southerly breeze from the south over the lake.

Editor's note: Don't be surprised when this report mentions 'low water levels' (it was, after all, April). Lake Eppalock is currently full, and many of the features described here would not be visible today.

Introduction

I would have to say that this was a most happy and fulfilling excursion to an area in which past club members contributed original field research in the 1970s, and which we have visited periodically since then. Eric was not only involved in that pioneering period, but he also mapped the area as part of his professional work for the Geological Survey of Victoria in his role as the District Geologist in the Bendigo Office. For this occasion, Eric had produced an excellent 7-page leaflet with background information and descriptions of the sites - we were very appreciative.

What else made this day a success? Well, everybody was in a positive, receptive frame of mind to tackle some rather complex geology, and also prepared to embark on a little adventure as you will see. And yes, we had had absolutely no trouble hearing Eric's commentary courtesy of the elusive Chatter Vox speaker, loaned from the Friends of the Botanic Gardens. The bird watchers made some interesting observations too (see page 13), in the context of a lake at very low levels and eucalypts which were clearly struggling to hold their own.

Stops

1. Carpark at the end of Moorabbee Road

Eric gave us an overview of the Permian glacial area on the Heathcote 1:50,000 geological map, on which we could discern the Meadow Valley Fault (forming the western boundary of the glacial sediments) and the Ordovician inlier containing the important sites of Kellam's and Dunn's Rocks

The narrow, elongated shape of the glacial area defines a valley glacier, known as the Derrinal Glacier, moving towards the north and originating from an ice-cap located far to the south. At this time, what was to become the Australian land mass was incorporated in the supercontinent of Gondwana, and was located much further south towards the South Pole. The valley glacier shape is narrow at the south end, but widens towards its northern end, indicating that it was at its limit and was in fact dissipating into an ocean located to the north. Sediments from this ocean have been located in bores beneath the Northern Plains, covered by Tertiary and Pleistocene sediments which now completely obscure the Permian evidence.

2. Shoreline of Lake Eppalock between the end of Moorabbee Road and Kellam's Rock

This area holds an extensive deposit of till. This is unconsolidated (loose) material, composed of a matrix of clay within which there are particles ranging in size from pebbles to small boulders. Such material dropped out of the ice as it melted, but was not sorted by running water. The larger erratics in this material have two interesting features: they have a wide variety of origins (rhyolite, greenstone, porphyry, sandstone, conglomerate, granite), and their surfaces are scored with grooves carved by other rock particles in the ice. Of particular note were the large, rounded, pink granite boulders with very coarse mineral crystals – obviously nothing else like this rock occurs anywhere nearby, and it has been carried here on or in the ice.

3. Kellam's Rock (see page 7)

This is part of the underlying Ordovician bedrock over which the ice moved on its way

north, smoothing the surface and leaving a whole range of scratches and gouges. Two particularly deep, wide and long grooves at the northern end are either the result of bigger rocks being pushed along in the pavement, or they are softer sections of the rock that were worn out more easily. The smooth pavement actually extends almost 100 metres down into the lake, but it is not continuous. The top few millimetres of the surface have been case-hardened by the gradual incorporation of silica to form a kind of armour plating. You can see places where this extra hard, darker layer has been removed by erosion, because the rock is paler beneath.

Before the lake was filled, only a small part of Kellam's Rock was visible, in the vicinity of a large Red Gum, which is still there. The remainder was covered by soil and therefore invisible. But since the rock is on the north shore of the lake, and subject to vigorous wave action generated by prevailing winds from the south, the pavement has not only been exposed, but has been extensively damaged by waves loaded with grit and gravel being hurled against it. In fact, the upper part has really been destroyed, and much of the resulting debris lies in a band below the solid rock outcrop. At full supply level, Kellam's Rock is not visible, and, being well below the surface waves, is actually protected. As the level falls, the damage starts again.

4. Day's Rock

This is a small Ordovician rock bar in the gully near Kellam's Rock, and it is difficult to find any scratches which have been largely worn away.

5. Dunn's Rock (see page 7)

This exposed pavement is part of the same Ordovician outlier as Kellam's Rock. It was the contention by another geologist that it was the crest of an anticline that challenged Frank Robbins to determine whether it was really a glacial pavement. The exposed and weathered surface is covered in lichen, but glacial striations are still visible. An excavation in May 1973, organized by Frank Robbins and Eric, and assisted by other BFNC members, exposed unweathered surfaces below the soil. These clearly showed the long grooves left by small particles of rock dragged along the surface by the heavy ice as it moved north. Eric had some excellent photos of these excavated surfaces to show us. Since the strata of this sedimentary rock are dipping steeply west, ice working with the dip has created a smooth surface, whereas ice working against the dip has left a plucked and rippled surface on the east side.

6. Till deposit on the Moorabbee Foreshore Road

The other term for a loose till deposit is "diamictite", indicating material composed heterogeneously of rock flour and other larger particles. This deposit is in fact semi-consolidated, and probably has not changed much since Permian times. No deep overburden was ever laid on it, so that it has never quite become rock. The deposit has two layers. The upper (sub-soil) part of this section is distinctly reddish, due to oxidation of the iron content of the till, but is identical in origin to the lower unweathered part of the cutting. The lower section is still grey because the iron content has not been exposed long enough to create the rusty colour.

7. Point Patterson

At the end of the road down to the lake at the caravan park, there is a large deposit of fluvio-glacial conglomerate and sandstone. This is material that was embedded in the ice, but which was carried, deposited and stratified by running water issuing from the melting ice at the end of the glacier. As was said previously, this was generally the area where the glacier was dissipating and merging into the inland ocean. This rock is extremely hard, and its strata, which would have been laid down in a horizontal position, have been tilted so that they are now steeply dipping to near vertical, due to slumping associated with the melting of the ice.

There is a very interesting unconformity here, as the fluvio-glacial rock with an age of 300 million years, lies directly over the top and in contact with the Ordovician mudstone basement rock with an age of 490-550 million

years. There is also plenty of the loose, blue-grey till material in the vicinity.

8. Moorabbee Bluff – west side

This is the type locality of what is called the Wild Duck Formation, which is really a jumble of different rock types – the loose till, the consolidated fluvio-glacial conglomerate and the sandstone. Within the sediments, there is evidence of cross-bedding (layers at varying angles due to changes in the direction of water currents) and slumping (due to ice).

9. Moorabbee Bluff – east side

This section of the shoreline is actually a very steep cliff, which can only be accessed with some difficulty. Below the cliff the former course of Mount Ida Creek may be discerned in the water by the topmost branches of drowned trees, now showing due to the low lake level. This was where we embarked on our little adventure. At the bottom of the cliff, but now well clear of the water level, lies Wilkinson's Pavement, a large, slightly inclined surface with wide, shallow grooves created by pebbles in the moving ice. Some of the pebbles which created these grooves are still trapped in the rock where the ice left them. Eric was the first person to recognize this pavement when it came into view at a low lake level in 1975. He however did not name it after himself – that was done by someone else. Several of us very carefully made our way down to this pavement. As Eric was determined to follow, since at 77 it might be his last chance to stand on the feature which bears his name, we gave him some help to do so (see photo on front page and page 6).

Well above Wilkinson's pavement lies another smaller one called Frake's Pavement. We manoevered ourselves along narrow ledges on the cliff so as to be able to see this pavement too, but it really is too dangerous to access. Now the really interesting thing about these two pavements is that they are made of sediments derived from fine sandstone material, which was deposited out of the melting ice and subsequently transformed into rock. The deposition occurred as the glacier was in an advancing phase. Subsequently, the ice retreated due to warming changes in the climate, and the sediments became lithified due to the various processes that do this (overburden weight, cementing etc). Then, as the climate became cooler again, the ice advanced over the top of its own deposit, and left grooves made by pebbles trapped in the base. Therefore, the fact that there are two of these pavements, separated vertically in time and space, indicates clearly that the ice advanced and retreated several times.

10. The Stranger (see page 7)

This is the biggest erratic in the whole Central Victorian glacial area, and is made of granite (quartz, pale plagioclase feldspar and some pink potassium feldspar, some biotite). It got its name "The Stranger" from being clearly a rock out of place. The nearest possible source for this large block of granite is the granitic area of the Cobaw Range, about 22 km to the south at the closest point, but it may well have come from even further south. Regardless of where it actually came from, it has been carried a long way to its final resting place by the Derrinal Glacier.

This rock was once clearly visible from the nearby McIvor Highway, and even had a finger board pointing to it, but the River Red Gums which have grown up around the margins of the lake since it filled in the late 1960s has meant that the rock can no longer be seen in this way.

The volume of this large rock, with somewhat straight (faceted) sides, is about 17 cubic metres, which at 2.68 tonnes per cubic metre for granite means that it weighs somewhere between 45 and 50 tonnes, definitely not the 100 tonnes previously cited in geological literature. There is some evidence that the rock has been gradually slipping down the steep slope on which it rests. Two very remarkable features of The Stranger are that the upper surface has been clearly scooped out by the ice, and the surfaces of the feldspar crystals have been highly smoothed and polished.

11. Erratic zone west of The Stranger

Along the steep hillside there is a wide range of erratics also deposited by the ice, some sedimentary and a lot of granite ones, many of

which are the beautiful pink type. A main gully, a few hundred metres west of The Stranger, is chock full of erratics which have been moved there by the farmer (one of the McNutt family who owns this land) to control erosion.

Acknowledgement
I would like to thank Eric Wilkinson for making certain corrections and additions to this report.

Bird Observations Moorabee and Lake Eppalock, 17/4/16
In spite of being told that this was not a bird excursion, some of us could not help ourselves. There were a number of waterbirds using the lake: 200 or more Little Black Cormorants, Darters spread out along the shore while drying their wings, Pied Cormorants, Great Cormorants, a Great Egret and a White-faced Heron, Australian Pelicans, Black Ducks, Australian Wood Ducks, Swans. Silver Gulls joined the flock of Little Black Cormorants while they were feeding.
Other birds for the day included:
Wedge-tailed Eagle
Masked Lapwing
Galah
Long-billed Corella
Sulphur-crested Cockatoo
Musk Lorikeet
Red-rumped Parrot
Laughing Kookaburra
Striated Pardalote
Weebill
Yellow Thornbill
Red Wattlebird
Noisy Miner
White-plumed Honeyeater
Brown-headed Honeyeater
Grey Shrike-thrush
Magpie-lark
Grey Fantail
Willie Wagtail
Australian Magpie
Australian Raven
Little Raven
White-winged Chough
Welcome Swallow

Observations, Sightings and Records
Recording your observations and sightings is a great way to contribute to our understanding of natural history. Don't underestimate your capacity to make a valuable contribution, it's never been easier with the new communication platforms now available. Already in just a few years, many new discoveries have come from simple observations by enthusiastic and inquisitive people with an interest just like you! There are several ways you can easily get involved:
- Email a photo/comment anytime during the month to info@bendigofieldnaturalists.asn.au or richard.goonan@optusnet.com.au
- Visit the club's website and click on the observations tab and fill in the form
- Text a photo or comment to 0423418815, add your name and other details as appropriate
- Post an observation on the club's Bowerbird project, ask for help if you're unsure
- Send your observation as a message with a photo or comment via the club's Facebook page
- Call Richard or any committee member and have a chat anytime during the month
- Take a hardcopy observation form and fill it in before the monthly meeting and bring it along
- If you're comfortable in front of the microphone, briefly report your observation to the meeting in person

Observations contributed through the month will be collated and reported at the monthly meeting. Where possible (e.g. if you provide at least a photo and location) these can also be added to the clubs Bowerbird project as part of the rapidly growing citizen science movement which is transforming our knowledge of biodiversity on a scale previously not possible.

Do you want to join the BFNC committee?
There are a number of vacancies on the club's committee (which meets on the third Wednesday of each month). If you feel that you could contribute a little bit of time to running the club, why not contact John McCallum?
(see inside front cover for contact details)

Committee Notes, 16th November 2016
New and on-going business included the following items:

- Malcolm Cousland was nominated for Club membership and this has been approved by the committee.
- BFNC will be represented at the launch of the VNPA publication "Living Next to Nature" on Saturday 26 November.
- The City of Greater Bendigo have undertaken to install a bike rack at the Hall.
- A website for the Hall is being prepared to publicise its availability for hire.
- The permit to hold the Club's collection of skins has been renewed and is valid until 2019

Wildlife Apps

assembled by John McCallum

Here are a few apps that you can download to your tablet or smart phone.

Morecombe's *Birds of Australia* is a spin-off from his book. As well as pictures, distribution maps and other information it includes calls for most species and costs about $30.00

If you haven't already got it, Museum Victoria's *Field Guide to Victorian Fauna* has a good representative collection of pictures of vertebrates and invertebrates. It includes calls for frogs and is free to download.

A recent appearance is Bird Life Australia's *Wetland Birds*. It covers 63 non-passerine birds that might be encountered in wetlands in Tasmania, Victoria and South Australia. Each entry includes good notes to aid identification, a number of recorded calls, a map of verified records for the whole of Australia and a link to Birdlife Australia's profile for the species. There is also a size reference silhouette against outlines of what look like a raven and a flycatcher of some sort. It too is free to download.

An e-book published by the Field Naturalists Club of Victoria (FNCV) is *Fungi In Australia*. To quote the blurb in their newsletter, Field Nats News (No 263, May 2016) this is

...a freely downloadable e-book, which consists of 9 parts, is intended to serve as a resource to assist in the identification of some fungi that may be encountered in our native forests. It contains 307 species and over 1500 photographs of fungi, plus references for further study.

Go to the FNCV website at http://www.fncv.org.au/ and from the home page scroll down in the Publications tab to Fungi in Australia.

This is a free download although users are encouraged to make a donation to the FNCV when they download it.

Picture puzzle on page 9
This is a Western Australian Christmas tree, *Nuytsia floribunda*, the world's largest species of mistletoe. Some people believe that the mistletoe's lifestyle (being a hemi-parasite) originated as a root parasite, so *Nuytsia* could be close to what an ancestral mistletoe might have been like.

This specimen was flowering at the end of November in Perth along quite a few nature strips in the outer city. A magnificent sight and a good vehicle to wish everyone a very happy Christmas.

At Easter 2017 Mid Murray FNC will be celebrating 50 years.
They have extended an invitation to anyone interested in joining them in celebrating the 50th Anniversary of the Club. BFNC Club members are welcome whether they were ever a member of the Mid Murray Club or not. Good Friday (April 14th) – evening dinner at the Tooleybuc Club and camping at Wandown Flora and Fauna Reserve. Excursions are planned for Easter Saturday and Sunday. Everyone can participate in a Spit Roast on Saturday evening. For catering purposes, RSVP President Myf Macfarlane: in writing at 33 Boree Drive, Swan Hill 3585, or phone (03) 5032 3845 or 0499 022 752 for catering purposes. Deposit $10 required please for Spit Roast.

Diary

All Club meetings are held at the Golden Square Hall, Old High St Golden Square, unless otherwise indicated.

Wednesday, 14th December 6.30pm
Gathering for Christmas dinner. As in previous years, this is a chance to share some delicious food, conversations and inspect the garden. Bring your own drink and a dish and try everybody else's too. The hall is occupied till 6.15pm, so do not arrive too early…
As there will be no a speaker on this occasion, please bring along any special, end-of-year observations to share.

Annual hall cleanup – Saturday 17th December at 9am. Main jobs include: cleaning kitchen/cupboards/fridge etc, brushing cobwebs, dusting, windows/window sills, etc. All are welcome, and please bring any cleaning equipment you may like to use.

Wednesday, 8th February 7.30pm
(please note there is no meeting in January)

Excursions

Saturday: Weekly Naturalist Walks
Non-members welcome, family friendly
Weekly from 8:50am to 12pm (no cost)
Meet at Golden Square Hall
Contact Richard (0423418815)
Email richard.goonan@optusnet.com.au
Destination for December and January are:
December 3, 10 and 17, see page 3 and website for details.
In January 2017, there is **'Breakfast with the Birds'** Saturday 7, 14, 21 and 28, 7-9am – visiting local areas. Meet 7am at Golden Square Hall. See website for further details.

Family Nature Club

Check out their website. **Registration:**
Bendigonatureclub@gmail.com or 5443-1326
http://bendigofamilynatureclub.blogspot.com.au

SEANA Camp 2017 – first information

The 2017 camp will be held over the extended weekend of 17-20 March, based in Sale in Central Gippsland. Matt Comer and Sabine Wilkens have information about accommodation options (including group packages), the extensive and interesting program, as well as the registration form. Forms and payment are due by Friday 20 January 2017.

Wildlife Rescue & Information Network Inc.

W.R.I.N. is an organisation dedicated to the care of orphaned, sick or injured native animals. It is fully endorsed by the Dept of Sustainability and Environment.
Please call our Emergency Number for Help for Fauna in Need. Phone: 0419 356433.
WRIN meetings held on the 1st Saturday of February, April, June, August, October and December at 1pm the Golden Square Hall

Bendigo Native Plant Group meeting.

All interested people are welcome to come along. Meeting normally starts at 7:30pm on the third Tuesday of the month, Golden Square Hall. **Please note** – This group does not have a meeting in December and January, so the next meeting is February 14, 2017.

At Easter 2017 Mid Murray FNC will be celebrating 50 years.

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Deadline for February *Whirrakee* is the 24th of January